

ORIGINAL

Before the
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Common Carrier Bureau Seeks Comment on)
Translation of Cost Model to Delphi Computer)
Language and Announces Posting of Updated)
Cost Model)
_____)

CC Docket No. 96-45

COMMENTS OF WORLDCOM, INC.

WorldCom, Inc. ("WorldCom") hereby submits its comments in response to the Commission's Notice in the above-captioned matter.¹

I. WORLDCOM HAS NO OBJECTION TO USE OF THE DELPHI LANGUAGE FOR USE IN COMPUTING UNIVERSAL SERVICE SUPPORT

The Commission proposes to convert its existing Synthesis Model (SM), used to set Universal Service support for non-rural carriers, from the Turbo-Pascal language in which it is currently written to the Delphi language. Both these programming languages can be used for the purposes the Commission proposes. The Commission should use whatever language will run the quickest and at the same time allow interested parties the most ability to see the steps that lay behind the final results. It appears to WorldCom that neither language has an advantage in meeting these two criteria, and thus WorldCom has no objection to the use of the Delphi programming language in the SM.

¹ Public Notice, Common Carrier Bureau Seeks Comment on Translation of Cost Model to Delphi Computer Language and Announces Posting of Updated Cost Model, CC Docket No. 96-45, DA 01-1458 (June 20, 2001) ("Notice")

II. CERTAIN CHANGES TO THE SYNTHESIS MODEL SHOULD BE IMPLEMENTED TO MATCH THE COMMISSION'S STATED INTENT

In most instances, the Turbo-Pascal version of the model matches the Commission's description of how the cost model should work. In a few instances, however, this is not the case. These instances can be corrected with only slight modifications to the computer code, most of which have already been provided to the Commission. The Commission should take advantage of this opportunity to revise certain aspects of the SM to make the model more closely reflect the Commission's stated intent.

A. Drop Terminals are inefficiently placed

The current SM assumes that all drop terminals are located in the northeast corner of the microgrid. This leads to the inefficient placement of excess distribution cable when, as is often the case, the serving area interface (SAI) is closer to a different corner of the microgrid. To correct this problem, the Delphi version of the model should be modified to place drop terminals on the side of the lot closest to the SAI. This will ensure that the SM meets the Commission's stated intent of modeling the most efficient network configuration.²

B. All Customer Locations Should be Determined in the Same Manner

The present version of the SM places customers differently, depending on whether the customer is in the middle or near the edge of a cluster. Customers who are located in the middle of a cluster are uniformly distributed within a microgrid. However, customers located near the edge of the cluster are often moved into the 500-foot buffer zone that the SM creates around each

² The Commission has already been provided with Turbo-Pascal code that would implement this change, and could easily convert this to Delphi. See Letter from Richard N. Clarke, AT&T, to Magalie Roman Salas, Secretary, CC Docket Nos. 96-45 & 97-160 (Feb. 16, 2000) ("AT&T Feb. 16 Ex Parte") at 5, and Letter from Richard N. Clarke, AT&T, to Magalie Roman Salas, Secretary, CC Docket Nos. 96-45 & 97-160 (Feb. 28, 2000) ("AT&T Feb. 28 Ex Parte") at 3-4.

cluster. This has the effect of further dispersing customers, thereby inappropriately raising costs. The Delphi version of the SM should correct this inconsistent treatment.³

C. The Configuration of Lots Should be Corrected to Reflect Commission Intent

The documentation of the current SM states that lots are designed by the model to have lengths that are no more than twice their widths. However, the Turbo-Pascal source code does not implement this constraint, allowing a lot's depth to be more than twice its width. The Delphi version of the SM should incorporate the modifications that have already been provided to the Commission that correctly implement this constraint.⁴

D. Residual Lines Should be More Accurately Distributed to Microgrids

The method currently used to determine the number of lines in each microgrid needs to be modified to more accurately reflect customer location data. At present, the number of customers in each microgrid is first determined, and then per-customer line count data is used to determine the number of lines in each microgrid. However, the per-customer line counts are often fractions (e.g., 1.2 lines per customer). The SM rounds off the line count to the nearest integer (1.2 lines per customer would be rounded to 1), and multiplies that by the number of customers in each microgrid to determine the number of lines per microgrid. The number of residual lines per customer (0.2 lines in this example) is then multiplied by the total number of lines in all microgrids in the cluster and this number of lines is randomly distributed among all microgrids in the cluster.

³ Turbo-Pascal code implementing this correction was included in AT&T Feb. 28 Ex Parte. This code should be translated to Delphi and incorporated into the SM.

⁴ See AT&T Feb. 28 Ex Parte at 5.

This method of assigning the residual lines may place too many lines in some microgrids and too few in others. A more accurate method would be to multiply the line counts per customer by the number of customer locations in each microgrid, and then round off that line count. The residual left over after the rounding could then be summed over all microgrids, and randomly assigned.

The advantage of this methodology is that it would more closely tie the number of lines in each microgrid to actual customer locations and would minimize the number of residual lines to be randomly assigned. The Commission has already been provided with Turbo-Pascal code that would correct this error.⁵ It could easily be translated into Delphi code and incorporated into the new Delphi version of the SM.

E. Distance Criteria, not Average Cost Criteria, Should Determine Cable Routes

The SM uses a Prim algorithm to determine the order in which nodes are connected to the network, connecting them on the basis of minimum average cost.⁶ This methodology can cause the model to connect nodes in more densely populated areas before it connects closer but less densely populated areas. This will, in some instances, result in “back-tracking” of outside plant and the attendant structure, thereby inefficiently raising costs. The SM should be modified to connect nodes based on distance rather than cost. Turbo-Pascal code to achieve this result has already been provided to the Commission.⁷ It should be translated into Delphi and included in the new SM.

⁵ Id.

⁶ Nodes in the feeder plant are SAIs. Nodes in the distribution plant are drop terminals.

⁷ See AT&T Feb. 28 Ex Parte at 5.

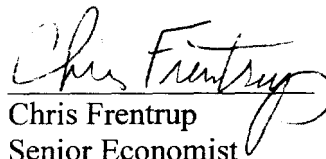
F. Outside Plant Equipment Should be More Accurately Sized

Finally, the SM places some outside plant equipment that is too small, and thereby understates costs. First, it selects the next *smallest* size of drop terminal to serve a given number of lines rather than the correct next *larger* size. Similarly, the model selects the next smaller size of manhole when the number of ducts required falls between two sizes of manhole. The Delphi model should correct these errors.

III. Conclusion

The Commission should make the corrections discussed herein as it translates the SM into the Delphi programming language. This will ensure that the SM more accurately models the cost of an efficient network, as the Commission intended.

Respectfully submitted,

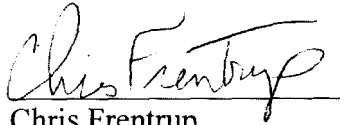


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August 13, 2001

STATEMENT OF VERIFICATION

I have read the foregoing and, to the best of my knowledge, information, and belief, there is good ground to support it, and it is not interposed for delay. I verify under penalty of perjury that the foregoing is true and correct. Executed on August 13, 2001.

A handwritten signature in black ink, reading "Chris Frentrup". The signature is written in a cursive style with a horizontal line underneath the name.

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